REMARKS

In an Office Action dated February 13, 2004, claims 1-6, 9-11, and 34-36, all of the claims under consideration in the subject patent application, were rejected. By amendment above, claim 1 has been rewritten. Support for the amendments to claim 1 can be found in Figure 3 of the specification, clearly showing a conduit in the support material as claimed.

Reconsideration of this application and allowance of the claims is respectfully requested in view of the foregoing amendments and the following remarks.

The Examiner has rejected claims 1-6, 11 and 34-36 in the pending application as anticipated by Winkler et al. (US 5,677,195). The Examiner asserts that Winkler et al. teaches the synthesis of polymer substrate arrays (for example oligonucleotides) for use in screening studies for determinating binding affinity of sample analytes. According to the Examiner this synthesis comprises providing a support comprising at least one channel comprising a conduit having an inlet and outlet for passing fluid from the inlet to the outlet (e.g. Winkler et al. figures 4-8), passing liquid with building blocks for synthesizing polymeric receptors through the channel(s) of the support body, and time specifically immobilizing the receptor building blocks in each case on predetermined positions in the channel(s) by illumination. The Examiner references figures 13-15 asserting that these figures illustrate this synthesis. According to the Examiner the method of Winkler et al. can attach the receptor in a homogeneous or heterogeneous manner. Further, the Examiner states that Winkler et al. teach a large number of parallel channels, which provide a three dimensional substrate for synthesis with nucleic acids to form a plurality of different polymer receptors. Additionally, the Examiner asserts that the reference teaches that the substrate can exist as capillary channels. Moreover, the Examiner also

rejected applicants' arguments in applicants' response to the previous Office Action. According to the Examiner the three dimensional surfaces for synthesis as argued by applicants only applies to claims 34-36. Further, the Examiner asserts that Winkler et al. teaches a 3D channel as a combination of a flat surface or biochip mounted on a support which has channels which forms a rectangle possessing a 3D surface area for synthesis. Also, the Examiner states that the Winkler et al. reference teaches that the substrate on to which the polymeric receptors are synthesized is preferentially an array of capillary channels.

Applicants submit that the present invention is substantially different from the Winkler et al. method. It appears the Examiner is reading the channel as claimed in the present invention to include open channels, not just pipe or tube like channels. To more clearly define the channels in the present claims as pipe or tube like channels applicants previously amended the claims to be directed to a conduit having an inlet and outlet through which fluid flows from the inlet to the outlet. It appears that the Examiner is not distinguishing a conduit as defined in the claims from an open channel. The Examiner therefore has adopted the broad view that a conduit reads on an open channel or trench. Applicants have amended claim 1 of the application to define the conduit as a "fluid tight conduit with a top, a bottom and two sides having an inlet and an outlet for passing fluid from the inlet to the outlet" in the support material. Applicants submit that the physical appearance of the channel and the array of channels in which synthesis takes place is now more clearly defined.

Further, applicants submit that, although Winkler et al. teaches a method of performing combinatorial chemistry on the surface of a substrate, this surface is very different from the surface of the present invention. This is because the surface in Winkler et al. contains grooves, trenches and

a particular polymer. Furthermore, there is no mention or suggestion whatsoever in Winkler et al. that synthesis of the polymeric receptor is on a three dimensional surface of a fluid tight conduit with a top, a bottom and two sides as claimed. Therefore, the Winkler et al. reference does not teach or suggests the present invention.

Applicants therefore submit that claims 1-6, 11, and 34-36 of the pending application are not anticipated by Winkler et al (US 5,677,195). Withdrawal of the rejection is respectfully requested.

The Examiner also rejected claims 1-6, 9-11, and 34-36 as obvious over Winkler et al. and Fodor et al. (WO 92/10092) (incorporated by reference in the Winkler et al. reference). The Examiner in his rejection asserts the same teachings by Winkler et al. as asserted in the anticipatory rejection made by the Examiner. According to the Examiner the Winkler et al. reference method differs from the claimed invention for failing to explicitly teach the use of a "programmable light source matrix" for illumination and computer program patterning of polymeric receptors. However, the Examiner states that the Winkler et al. reference indicates that the computer programmable light source matrix and patterning method according to Fodor et al. is an elegant method for such use. Therefore, the Examiner asserts that there is motivation to combine the Winkler et al. reference with the Fodor et al. reference making the synthesis method claimed obvious.

Applicants submit that Winkler et al does not teach or suggest the presently claimed invention as described above. Furthermore, Fodor et al. is directed to a computer programmable light source matrix for illumination and patterning in polymeric receptor synthesis but it does not teach or suggest the 3D reaction surface as claimed in the present invention in a large library

array, and thus does not cure the defects of the Winkler et al. reference. The Examiner's response to applicants previous argument that nonobviousness cannot be shown by attacking a reference individually is in applicants' view misplaced. Applicants' previous argument addressed the fact that Fodor et al. does not teach or suggest a key element which is also not taught or suggested by the primary reference and thus the presently claimed invention is nonobvious over the cited prior art combination. Therefore, even if one combines the teachings of both Winkler et al. and Fodor et al., the method as presently claimed is not taught or suggested because neither Winkler et al. or Fodor et al. teach or suggest the synthesis of polymeric receptors on a three dimensional surface in a conduit.

Applicants therefore submit that claims 1-6, 11, and 34-36 of the pending application are not obvious over Winkler et al (US 5,677,195) and Fodor et al (WO 92/10092). Withdrawal of the rejection is respectfully requested.

The Examiner has also rejected claims 1-6, 9-11 and 34-36 as obvious over Winkler et al. alone or combined with Fodor et al. (WO 92/10092) as applied to claims above, and further in view of Yeung et al. (US patent No. 5,741,411). According to the Examiner the teaching of Winkler et al. alone or in view of Fodor et al. described above suggests the current invention. The Examiner states that in so far as claims 34 and 36 are directed to the selection of a channel possessing a 3D reactive surface, Yeung et al. is offered as providing motivation to one of ordinary skill in the art to utilize such 3D channels in the Winkler et al. method.

Applicants submit that Winkler et al and/or Fodor et al either alone or in combination do not teach or suggest the presently claimed invention for reasons described above. In addition, there is no motivation to combine Winkler et al., alone or combined with Fodor et al., with

Yeung et al. to teach the current invention. Yeung et al. disclose a method of using an array of capillary tubes in a particular electrophoresis method. This electrophoresis method can separate and detect oligonucleotides wherein the detection step uses a light source. The mere fact that nucleotides may flow through these capillary tubes in such electrophoresis method is irrelevant to a method of synthesizing polymeric receptors on a three dimensional surface in a conduit. No synthesis takes place in the capillary tubes of Yeung et al. and therefore there is no motivation to combine the array of tubes taught by Yeung et al. in the synthesis method as taught by Winkler et al. Thus the claims of the present invention are non-obvious over Winkler et al. alone or combined with Fodor et al. in view of Yeung et al.

Applicants therefore submit that claims 1-6, 9-11, and 34-36 of the pending application are not obvious over Winkler et al (US 5,677,195) alone or combined with Fodor et al (WO 92/10092), or in view of Yeung et al (US 5,741,411). Withdrawal of the rejection is respectfully requested.

Applicants submit that the present application is now in condition for allowance. Reconsideration and favorable action are earnestly requested.

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